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prophase or telophase. The spindle is a cytoplasmic structure; even the part within the limits of the nuclear membrane does not come from the network surrounding the nucleolus, but grows in from the outside.—CHARLES J. CHAMBERLAIN.

Illinois River sand region.—In connection with the work of the Illinois Biological Station on the Illinois River at Havana, a brief survey was made of certain waste sandy areas in the neighborhood. The botanical survey was made by H. A. GLEASON,[16] whose results have now been published. The ecological factors of these peculiar areas are discussed, and four plant associations are presented. Under prairie formation the three associations are the "bunch-grass," the "blow-sand," and the "blowout;" while the single representative of the forest formation is the black-jack oak association. A list of the plants is given and the phytogeographic relationships are discussed.—J. M. C.

Sulfuric acid as a fungicide.—KRAEMER[17] in experimenting with dilute sulfuric acid as a fungicide finds that solutions from 1 part to 500 to 1 part to 1000 are not injurious to ordinary field plants such as wild cherry, elder, ailanthus, yellow dock, abutilon, and others. Roses infected with mildew were sprayed several times with a solution of one part H_2SO_4 to 1000 water without injury and with the complete destruction of the mildew. This fungicide may prove especially useful in greenhouses where mildew is often very destructive to roses and where ordinary fungicides are not applicable since they spot and discolor the foliage.—H. HASSELBRING.

Chromosomes of Oenothera.—GEERTS[18] finds 14 chromosomes in *Oenothera Lamarckiana*. In connection with a brief paper he figures several somatic divisions as well as the heterotypic mitosis in the microspore and megaspore mother cells. BEER[19] found 14 chromosomes in *O. longiflora* and GATES[20] reported 14 in *O. lata*, but 20 or more in the *O. Lamarckiana* hybrid obtained from a cross of *O. Lamarckiana* with *O. lata*. GEERTS also notes the constricted shape of the chromosomes in the anaphase and telophase of mitosis.—R. R. GATES.

Secondary thickening in Pandanus.—SCHOUTE[21] has investigated the alleged secondary growth in the stem of Pandanus, and comes to the same conclusion as

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[16] GLEASON, HENRY ALLAN, A botanical survey of the Illinois River valley sand region. Bull. Ill. State Lab. Nat. Hist. **7**:149–194. 1907.

[17] KRAEMER, HENRY, Dilute sulphuric acid as a fungicide. Proc. Amer. Phil. Soc. **45**:157–163. 1906.

[18] GEERTS, J. M., Ueber die Zahl der Chromosomen von *Oenothera Lamarckiana*. Ber. Deutsch. Bot. Gesells. **25**:191–195. *pl. 6*. 1907.

[19] BEER, RUDOLF, On the development of the pollen grain and anther of some Onagraceae. Beih. Bot. Centralbl. **19**:286–313. *pls. 3–5*. 1905.

[20] GATES, R. R., Pollen development in hybrids of *Oenothera lata* × *O. Lamarckiana*, and its relation to mutation. BOT. GAZETTE **43**:81–115. *pls. 2–4*. 1907.

[21] SCHOUTE, J. C., Ueber die Verdickungsweise des Stammes von Pandanus. Ann. Jard. Bot. Buitenzorg II. **6**:115–137. *pls. 5–8*. 1907.

CARANO, whose paper was noticed in the March number of this journal. From a number of careful measurements of trunks of different species the author concludes that there is no secondary growth in the stem of Pandanus, and that the dimensions of the stem are to be ascribed wholly to the primary growth in the vegtative cone.—M. A. CHRYSLER.

Subsoil water and forests.—PEARSON[22] has investigated the level of forest subsoil waters in India as compared with readings made in Russia and France. The conclusions are as follows: the levels within the forest are lower and steadier than those without, the effect of rain is felt later and lasts longer within than without, and the old woods lower the level more than young woods.—J. M. C.

Mutation in Nephrolepis.—Observations upon plants of *Nephrolepis Duffii* cultivated in a warm, moist atmosphere have brought GOEBEL[23] to the conclusion that this species is a mutation from *N. cordifolia*, the mutation here being a case of atavism. He believes that this and other cases of mutation in ferns may be due to adaption to environment.—CHARLES J. CHAMBERLAIN.

Leguminosae of Porto Rico.—Miss JANET PERKINS[24] has published an account of the Leguminosae of Porto Rico, 67 genera and 141 species being recognized. One genus (Stahlia) and eight species are peculiar to the island. The number of genera is rather remarkable, the largest being Cassia with 16 species. No new species are described.—J. M. C.

Crossing of Reana and Zea.—VILMORIN[25] has reported the crossing of a species of Reana (teosinte) with *Zea Mays*, the latter being the pollen parent. The phenomenon of xenia was strikingly developed, the characteristics of the two genera appearing in the ears.—J. M. C.

Diseases of cereals.—BUTLER[26] has described four diseases of grasses in India caused by *Sclerospora graminicola*, the hosts being *Pennisetum typhoideum*, *Andropogon Sorghum*, *Setaria italica*, and *Euchlaena luxurians.*—J. M. C.

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[22] PEARSON, RALPH S., The level of subsoil waters with regard to forest. Indian Forester **33**:57–69. 1907.

[23] GOEBEL, K., Morphologische und biologische Bemerkungen.—17. *Nephrolepis Duffii.* Flora **97**:38–42. 1907.

[24] PERKINS, J., The Leguminosae of Porto Rico. Contrib. U. S. Nat. Herb. **10**: 133–220. 1907.

[25] VILMORIN, PH., *Reana luxurians* × *Zea Mays.* Bull. Soc. Bot. France **54**:39–42. *pl. 1* 1907.

[26] BUTLER, E. J., Some diseases of cereals caused by *Sclerospora graminicola.* Mem. Dept. Agric. India Bot. Series **2**^{1}: pp. 24. *pls 5* 1907.